In the Claims:

1. (Currently amended) A method for detecting the beginning of combustion in an internal combustion engine (1) ~~comprising~~ having several cylinders (2, 3, 4, 5), from ~~by means of~~ a rotation speed signal determined for a shaft (6) of the internal combustion engine (1), in which

- at least one segment signal (SS), whose signal length corresponds to an integral multiple of one or more full ~~rotation~~ rotations of the shaft (6), is extracted from the rotation speed signal, so that each cylinder (2, 3, 4, 5) ignites one time in the rotation angle range represented by the signal length, ~~each cylinder (2, 3, 4, 5) ignites one time,~~
- a cylinder signal (ZS1, ZS2, ZS3, ZS4), which substantially reproduces the operational state in one of the cylinders (2, 3, 4, 5), is generated from the segment signal (SS),
- the cylinder signal (ZS1, ZS2, ZS3, ZS4) is transformed into a cylinder frequency signal (FS 1, FS2, FS3, FS4) in an angle frequency range, [[~~and~~]]
- a signal information indicating the beginning of combustion in the associated cylinder (2, 3, 4, 5) is extracted from the cylinder frequency signal (FS 1, FS2, FS3, FS4) at at least one predefined angle frequency[[~~,~~]] with regard to amplitude and phase

values associated with the predefined angle frequency, and

- the beginning of combustion is detected from the signal information.

2. (Original) A method according to claim 1, characterized in that the cylinder signal (ZS1, ZS2, ZS3, ZS4) is generated by means of extraction of a partial signal from the segment signal (SS), the partial signal detecting the rotation angle range, within which the concerned cylinder (2, 3, 4, 5) ignites.

3. (Previously presented) A method according to claim 1, characterized in that the operational state in the cylinder (2), for which the beginning of combustion is to be detected, is adjusted, and in that the segment signal (SS) resulting from adjustment is used as a whole as the cylinder signal (ZS1) which is significant for this cylinder (2).

Claims 4 to 10 (Canceled).

11. (Previously presented) A method according to claim 1, characterized in that the cylinder frequency signal (FS1, FS2, FS3, FS4) is generated by means of a discrete Hartley-Transformation (DHT) or a discrete Fourier-Transformation (DFT) or by means of digital filtering.

12. (Previously presented) A method according to claim 1, characterized in that at least two successive segment signals (SS) are determined arithmetically.

13. (Previously presented) A method according to claim 1, characterized in that for generating the rotation speed signal a transmitter wheel (7) is used and that the inaccuracies in the segment signal (SS) resulting from transmitter wheel errors are at least largely eliminated.

14. (Previously presented) A method according to claim 1, characterized in that by means of a digital signal processing an improved segment signal (SS*), in particular with a higher scanning rate, is generated.

15. (Previously presented) A method according to claim 14, characterized in that the segment signal (SS) is subject to an interpolation method, in particular to a Lagrange- or a sinc-interpolation.

16. (Previously presented) A method according to claim 14, characterized in that the segment signal (SS) is subject to a frequency transformation, in particular to a discrete Hartley-Transformation or a discrete Fourier-Transformation.

17. (Currently amended) A method according to claim 1, characterized in that the signal information ~~including~~ indicating the beginning of combustion is used for regulating the beginning of combustion.

[REMARKS FOLLOW ON NEXT PAGE]